

WHAT IS CLAIMED IS:

1. A method for the continuous mixing of at least one polyol component and at least one isocyanate component and optionally additives to form a polyurethane  
5 reaction mixture in a stirrer mixer comprising a cylindrical mixing chamber having a stirrer rotating therein with adjustable rotational speed, the stirrer containing a stirrer shaft and scoops or blades arranged thereon in one or more levels, the stirrer mixer having feed openings for at least the polyol component, the isocyanate component and optionally the additives and an outlet opening for  
10 the polyurethane reaction mixture, wherein three to six scoops or blades are arranged in each level on the stirrer shaft such that the scoops or blades are rotated by an angle  $\alpha$  of  $10^\circ$  to  $80^\circ$  counter to the axis of rotation of the stirrer shaft, said method comprising:  
feeding the polyol component, the isocyanate component and optionally the  
15 additives in a metered manner through the feed openings into the cylindrical mixing chamber and mixing therein to form the polyurethane reaction mixture;  
discharging the polyurethane reaction mixture from the mixing chamber through the outlet opening; and  
20 reducing the polyurethane reaction mixture pressure in an adjustable throttle, wherein the pressure in the mixing chamber is adjusted by a mutually matched setting of the rotational speed of the stirrer and of the throttling effect of the throttle.
- 25 2. The method according to claim 1, wherein the exact adjustment of the pressure in the mixing chamber is made by changing the rotational speed of the stirrer at constant adjustment of the throttle device.
- 30 3. The method according to claim 1, wherein the exact adjustment of the pressure in the mixing chamber is made by adjusting the throttle device at constant rotational speed of the stirrer.

4. The method according to Claim 1, wherein the scoops or blades are rotated by an angle  $\alpha$  of 20° to 70° counter to the axis of rotation of the stirrer shaft.
5. The method according to Claim 1, wherein the scoops or blades are rotated  
5 by an angle  $\alpha$  of 30° to 60° counter to the axis of rotation of the stirrer shaft.
6. The method according to Claim 1, wherein the scoops or blades are rotated by an angle  $\alpha$  of 40° counter to the axis of rotation of the stirrer shaft.
- 10 7. The method according to Claim 1, wherein the at least one isocyanate component is selected from the group consisting of toluene diisocyanate (TDI) and isocyanates of the diphenylmethane series (MDI).
8. The method according to Claim 1, wherein the at least one polyol  
15 component is selected from the group consisting of polyethers, polyesters and polyamines.
9. The method according to Claim 1, wherein the additives are selected from the group consisting of blowing agents, catalysts, emulsifiers, stabilizers, reaction  
20 inhibitors, pigments, dyes, flameproofing agents and fillers.
10. The method according to Claim 1, wherein the throttle or throttle device is selected from the group consisting of pinch valves and membrane valves.
- 25 11. The method according to Claim 1, wherein the stirrer mixer further includes flow destroying elements affixed to the inner surface of the cylindrical mixing chamber such that the blades or scoops pass between the flow destroying elements during mixing.